metos

DISHWASHER
WD-7

Installation and user manual

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Dear Customer,

Congratulations on deciding to choose a Metos appliance for your kitchen activities. You made an excellent choice. We will do our best to make you a satisfied Metos customer like thousands of customers we have around the world.

Please read this manual carefully. You will learn correct, safe and efficient working methods in order to get the best possible benefit from the appliance. The instructions and hints in this manual will give you a quick and easy start, and you will soon note how nice it is to use the Metos equipment.

All rights are reserved for technical changes.

You will find the main technical data on the rating plate fixed to the equipment. When you need service or technical help, please let us know the serial number shown on the rating plate. This will make it easier to provide you with correct service.

For your convenience, space is provided below for you to record your local Metos service contact information.

METOS TEAM

Metos service phone number:.....

Contact person:.....

1. General instructions 1

1.1 Symbols used in this manual 1
1.2 Symbols on the dishwasher 1
1.2.1 Machine marking 2
1.3 Checking that the machine and the manual correspond 2

2. Safety instructions 3

2.1 General information 3
2.2 Transport 3
2.3 Installation 4
2.4 Detergent and drying agent 4
2.5 Operation 4
2.5.1 Hot water 4
2.5.2 Crushing risk 4
2.6 Cleaning the dishwasher 4
2.6.1 Pressure washing 5
2.6.2 The outside of the machine 5
2.7 Washing the floor 5
2.8 Repairing and servicing the dishwasher 5
2.9 Recycling the machine 5

3. Installation 6

3.1 General information 6
3.2 Requirements for the installation site 6
3.2.1 Lighting 6
3.2.2 Ventilation 6
3.2.3 Drains 6
3.2.4 Space for servicing 7
3.3 Transport and storage 7
3.3.1 Unpacking 7
3.3.2 Recycling the packaging 7
3.4 Installation 8
3.4.1 Positioning the machine 8
3.4.2 Installation of auxiliary equipment 8
3.5 Connections 10
3.5.1 Connections 10
3.5.2 Anti-siphoning device, machine without an automatic hood, with or without a booster pump (extra equipment) 11
3.5.3 Anti-siphoning device, machine with an automatic hood and with a booster pump (extra equipment) 12

3.5.4 Anti-siphoning device, machine with an automatic hood and without a booster pump (extra equipment) 13
3.5.5 Steam hood with extractor (extra equipment) 14
3.5.6 Steam hood with condensation system (extra equipment) 15
3.5.7 Power connection 16
3.5.8 Water connection, regardless of any extra equipment 17
3.5.9 Drain connection, machines without a drain pump 17
3.5.10 Drain connection, machines with a drain pump 17
3.5.11 Bleeding the hood lifting cylinder, with a pump connection (extra equipment) 17
3.5.12 Bleeding the hood lifting cylinder, with a water connection (extra equipment) 17
3.5.13 Detergent and drying agent connection 18
3.6 Settings options for detergent and drying agent equipment (extra equipment) .. 19
3.6.1 24V AC or 230V AC power supply for detergent and drying agent dosing via relay 9/J71 and relay 11/J73 19
3.6.2 Settings options for relay 9/J71 21
3.6.3 Settings options for relay 11/J73 22
3.7 Trial run 22
3.7.1 Start-up schedule 23
3.8 Technical documentation 24

4. Instructions for use 25

4.1 Preparations 25
4.1.1 The machine's design 25
4.1.2 Preparations before filling 27
4.1.3 Filling the machine 27
4.2 Using the machine 28
4.2.1 Selecting a programme 28
4.2.2 Changing the washing temperature and washing time 28
4.2.3 Washing 31
4.3 After use – cleaning 34
4.3.1 Draining and internal cleaning (machine without a drain pump) 35
4.3.2 Draining and internal cleaning (machine with a drain pump) 36
4.3.3 Cleaning each week 37
4.3.4 Cleaning the exterior 37
4.3.5 Incorrect cleaning methods 38
4.3.6 Operating problems 38

1. General instructions

Read the instructions in this manual carefully as they contain important information regarding the correct, effective and safe installation, use and servicing of the dishwasher.

Keep this manual in a safe place so that it can be used by other operators of the dishwasher.

The electronics in the machine are RoHS compatible.

1.1 Symbols used in this manual

This symbol warns of situations where a safety risk may arise. The instructions given should be followed in order to prevent injury.

This symbol on a component is a warning of electrical equipment. The machine is sensitive to electrostatic discharge (ESD), which is why a static electricity wristband must be used when handling the electronics.

This symbol explains the correct way to perform a task in order to prevent poor results, damage to the dishwasher or hazardous situations.

This symbol identifies recommendations and hints to help you to get the best performance from the machine.

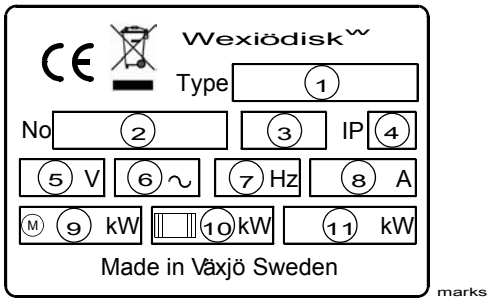
This symbol explains the importance of careful and regular cleaning of the machine to meet hygiene requirements.

1.2 Symbols on the dishwasher

This symbol on a component is a warning of electrical equipment. The component may only be removed by a qualified electrician. The machine is sensitive to electrostatic discharge (ESD), which is why a static electricity wristband must be used when handling the electronics.

1.2.1 Machine marking

The machine has two rating plates, one of which is placed at the bottom of one side of the machine and the other in the electrical cabinet. The technical information on the plates is also included on the machine's wiring diagram. The various rating fields show:



1. Machine type
2. Machine serial number
3. Year of manufacture
4. Enclosure protection class
5. Voltage
6. Number of phases with or without zero
7. Frequency
8. Main fuse
9. Motor output
10. Electrical heating output
11. Max. output

1.3 Checking that the machine and the manual correspond

Check that the type description on the rating plate corresponds with the type description on the front of the manual. If manuals are missing, it is possible to order new ones from the manufacturer or the local distributor. When ordering new manuals, it is important to quote the machine number found on the rating plates.

2. Safety instructions

2.1 General information

The machine is CE marked, which means that it complies with the requirements of the EU machinery directive with regard to product safety. Product safety means that the design of the machine will prevent personal injury or damage to property.

Modifying the equipment without the approval of the manufacturer invalidates the manufacturer's product liability.

To further improve safety during installation, operation and servicing, the operator and the personnel responsible for installing and servicing the machine should read the safety instructions carefully.

Switch off the machine immediately in the event of a fault or malfunction. The machine must only be serviced by trained engineers. The regular checks described in the manual must be carried out in accordance with the instructions. The machine must be serviced by a person authorised to do so by the manufacturer. Use original spare parts. Contact an authorised service company to draw up a programme of preventative maintenance. Dangerous situations may arise if the instructions above are not followed.

Before using the machine, ensure that personnel are given the necessary training in operating and maintaining the machine.

2.2 Transport

Handle the machine with care during unloading and transport to avoid the risk of it tipping over. Never lift or move the machine without using the wooden packaging to support the stand.

2.3 Installation

The electrical cabinet must only be opened by an authorised electrician. The machine is sensitive to electrostatic discharge (ESD), which is why a static electricity wristband must be used when handling the electronics.

The water connections must only be put in place by qualified technicians.

Water pipes must be connected in a way that complies with the current regulations of the local water supply authority. Check that the water connections do not leak before starting the machine.

Make sure that the mains voltage is the same as that indicated on the machine's rating plate. The machine should be connected to a lockable mains switch.

2.4 Detergent and drying agent

Only detergent and drying agent intended for industrial dishwashing machines must be used. Ordinary washing-up liquid must not be used in the machine or for soaking. Contact your detergent supplier regarding the choice of a suitable detergent.

Be aware of the risk of handling washing and drying agents. Protective gloves and safety glasses should be used when handling dishwasher detergent. Read the warning text on the detergent and drying agent containers as well as the detergent supplier's regulations.

2.5 Operation

2.5.1 Hot water

The temperature of the washing and rinsing water is 60°C and 85°C. If the machine has a manual hood lift, do not open the hood until the washing and rinsing phase is finished.

2.5.2 Crushing risk

If the machine has an automatic hood lift, take care when the lid is closing that your fingers or arms do not become trapped.

2.6 Cleaning the dishwasher

The water in the tank has a temperature of approximately 60°C and contains detergent. Take care when draining and cleaning the dishwasher. Use protective gloves.

2.6.1 Pressure washing

The machine must not be cleaned with a pressure washer, either inside or out.

In order to satisfy current requirements, electrical components of approved enclosure classes are used. No enclosure classes are designed to withstand pressurised water.

2.6.2 The outside of the machine

Pressure washers and hoses must not be used to wash the outside of the machine. Water can penetrate into the electrical cabinet and the control panel and damage the equipment, which may affect the safety of the machine.

2.7 Washing the floor

When the floor is washed, water can splash up under the machine and damage the components. These have not been designed to withstand being washed with water. Do not wash the floor within a distance of 1 metre from the dishwasher. Pressure washers have special protective cases which can be fitted to prevent water splashing. Problems with splashing can also occur when using ordinary hoses.

2.8 Repairing and servicing the dishwasher

Disconnect the power supply before removing the front panel. Avoid touching hot pipes and the booster heater.

Check the following points:

- Has the machine been used according to the instructions?
- Are all the removable parts in the correct place?
- Is the mains switch in the "ON" position?
- Are the fuses in the electrical cabinet undamaged? Ask the service personnel to check the fuses.

If this does not solve the problem, ask authorised service personnel to check the machine.

2.9 Recycling the machine

When the dishwasher has reached the end of its service life, it must be recycled in accordance with current regulations. Contact a company which specialises in recycling.

3. Installation

3.1 General information

The machine must be installed by authorised personnel only.

Read these instructions carefully as they contain important information regarding the correct installation method.

The instructions should be used together with the machine's wiring diagram and flow diagram.

The machine is CE marked. The CE mark is only valid for machines that have not been modified. If the machine is damaged as a result of the instructions not being followed, this invalidates the supplier's guarantee and the product liability.

3.2 Requirements for the installation site

3.2.1 Lighting

In order to ensure the best possible working conditions during installation, operation, servicing and maintenance, make sure that the machine is installed in a well-lit room.

3.2.2 Ventilation

The machine produces heat and steam when in operation. In order to ensure the best possible working conditions, a certain air change rate is required in the dishwashing room. The ventilation requirements for the machine are 600 m³/h. In addition, the ventilation requirements for the room should be calculated on the basis of current standards.

3.2.3 Drains

There must be a floor drain for the machine's waste water. The floor drain capacity can be found in the TECHNICAL SPECIFICATIONS.

3.2.4 Space for servicing

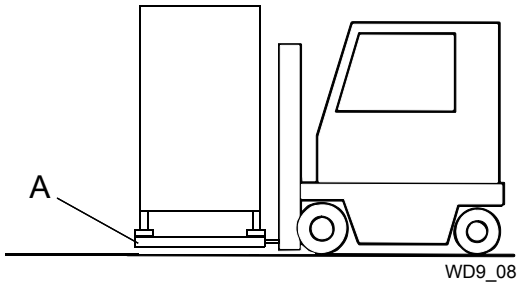
A 1-metre area should be left clear in front of the machine for servicing purposes.

3.3 Transport and storage

Always transport the machine in an upright position.

Take care during transport, as there is a risk of the machine tipping over.

NOTE: The machine must not be transported without a pallet or other support, otherwise the machine may become damaged. When transporting the machine without a normal wooden pallet, always check that none of the components underneath the machine can be damaged.



A=Wooden pallet

If the machine is not being installed immediately, it must be stored in a frost-free area where the air is dry.

3.3.1 Unpacking

Remove the packing material. Inspect the machine for any transport damage.

Check that all parts have been delivered by comparing them with the delivery slip.

3.3.2 Recycling the packaging

Packaging must be disposed of or recycled in accordance with local regulations.

3.4 Installation

3.4.1 Positioning the machine

Put the machine in position and check that it is horizontal using a spirit level. Place the spirit level on the join between the machine tank and the hood.

If the machine is to be corner-loaded, it must be positioned with the control panel furthest away from the wall.

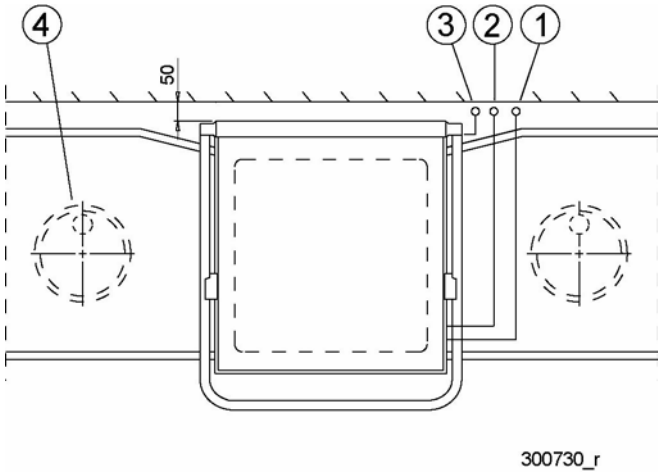
Adjust the height using the machine's legs. The machine even can be furnished with extensions leg (35mm).

3.4.2 Installation of auxiliary equipment

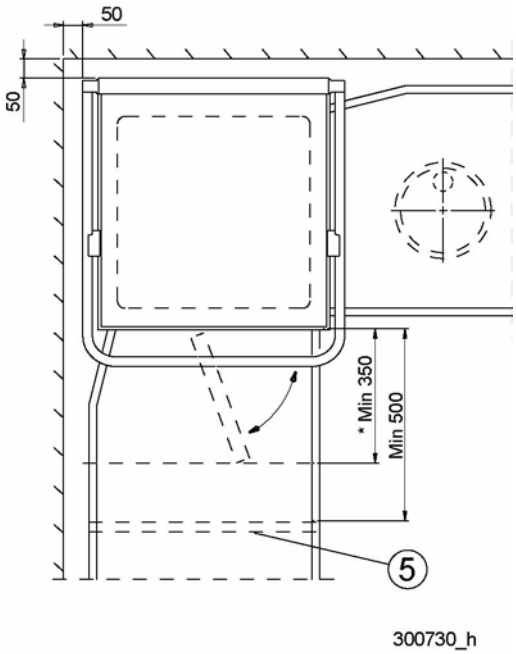
Once the machine is in place and has been adjusted horizontally and vertically, the auxiliary equipment can be fitted.

The machine can be positioned so that it can be straight-loaded or corner-loaded.

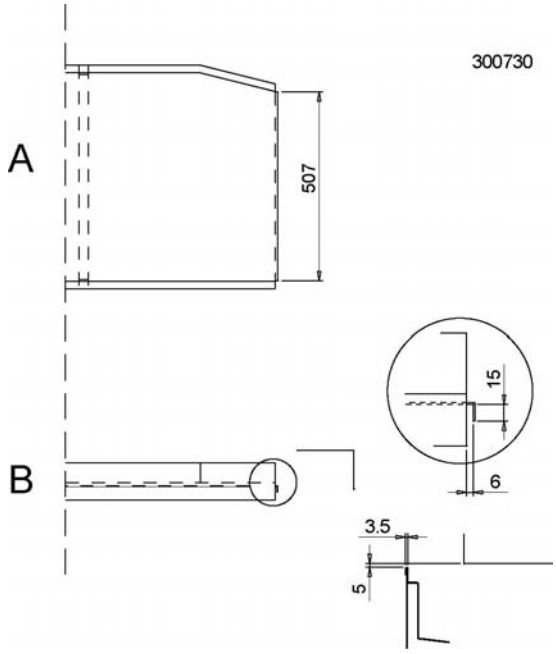
NOTE: When connecting sinks and conveyors, no holes must be drilled in the machine.



Straight loading



Corner loading



Sink connection A=View from above B=Connection to the front or side of the machine

1. Hot water connection
2. Cold water connection (automatic hood)
3. Power connection
4. Floor drain
5. Legs

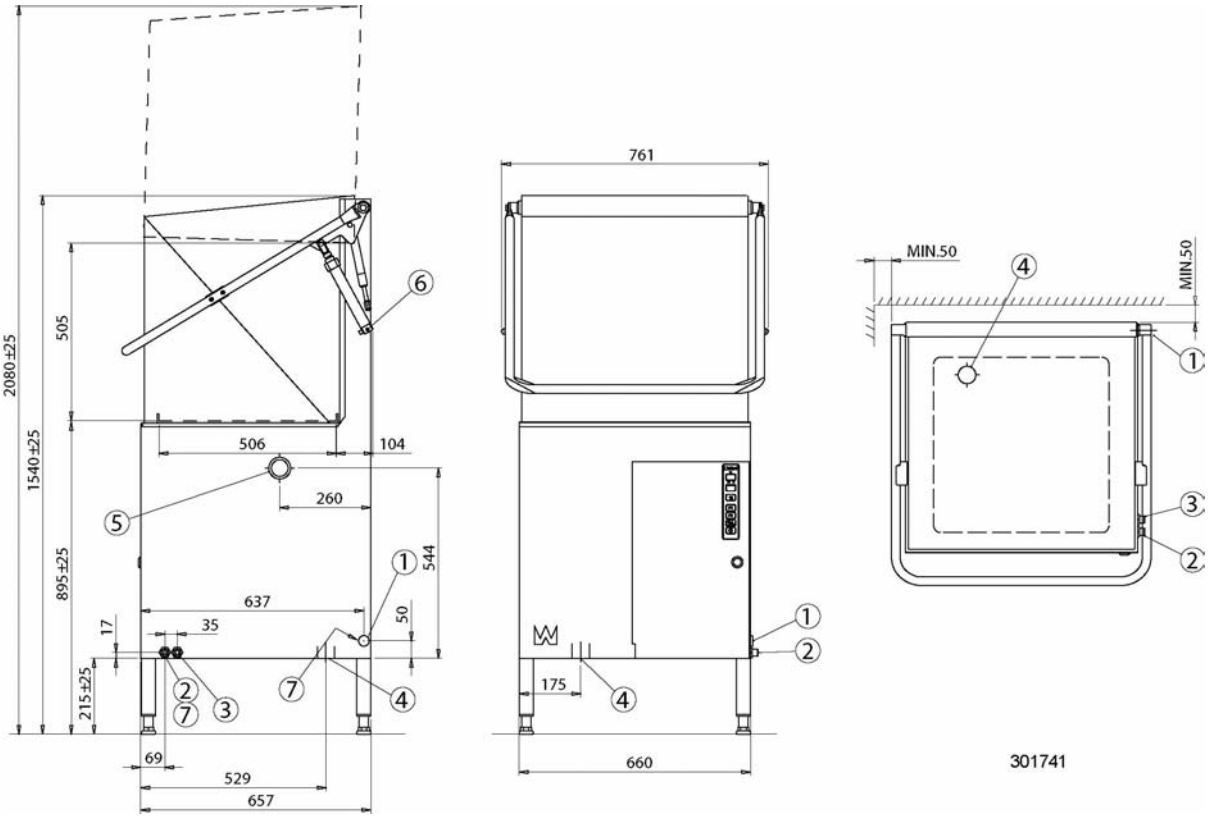
The sinks must be hooked firmly onto the top edge of the tank. If the machine is to be corner-loaded, there must be at least 350 mm of free space in front of the machine to allow the electrical cabinet and the door of the storage cabinet for detergent and drying agent (extra equipment) to be opened.

The legs on the sink connected to the front of the machine must be at least 500 mm away from the machine to allow the machine to be accessed for servicing.

Use a spirit level to check that the sinks are horizontal and adjust the height, if necessary.

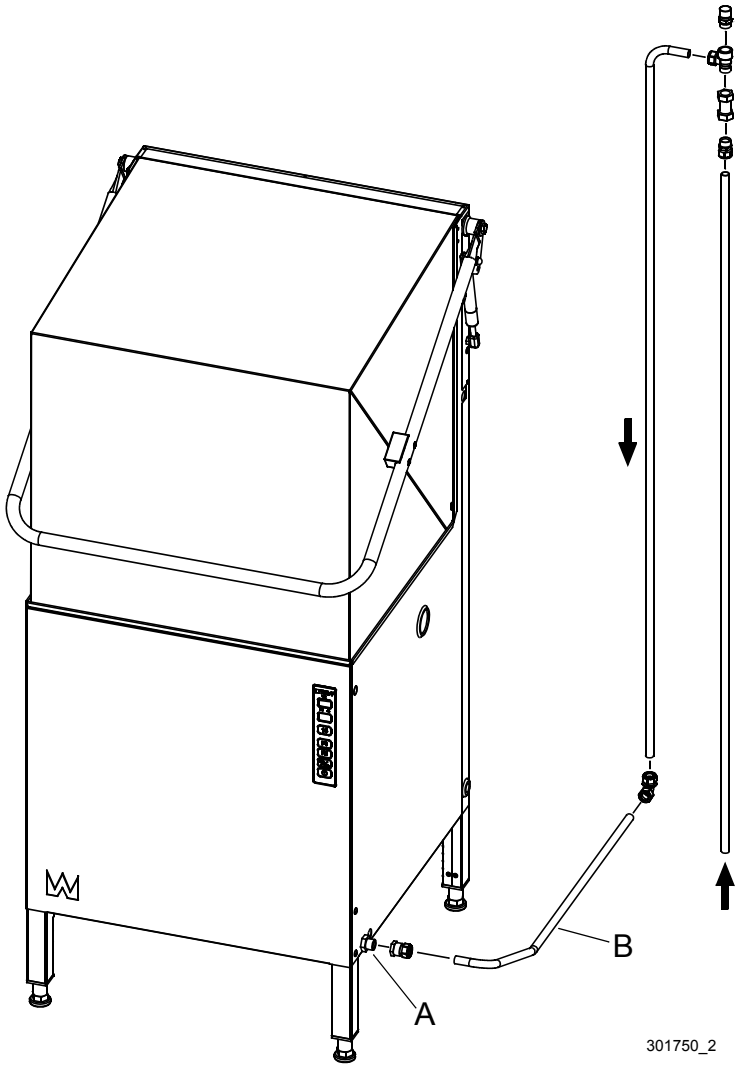
3.5 Connections

3.5.1 Connections



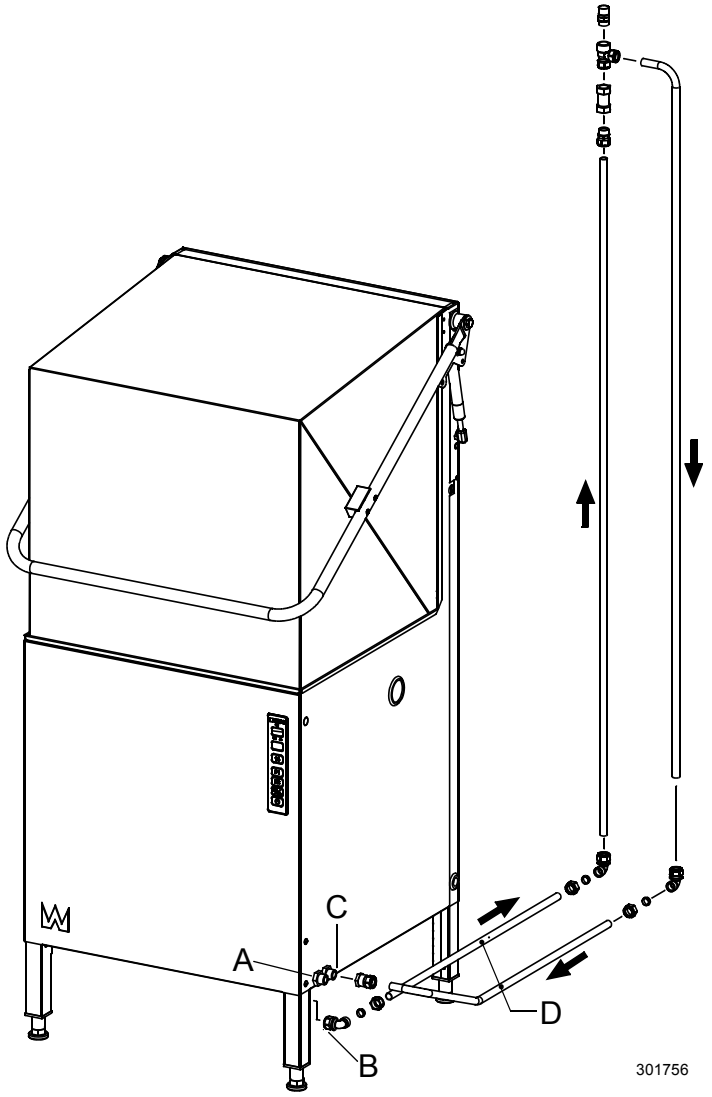
1. Power connection
2. Hot water connection R½"
3. Cold water connection R½" (on machines with a water-powered automatic hood)
4. Drain connection ø 50, 3 l/sec.
5. Plugged hole for a detergent hose
6. Bleed screw for the lifting cylinder (on machines with an automatic hood)
7. Water outlet for detergent dosing

3.5.2 Anti-siphoning device, machine without an automatic hood, with or without a booster pump (extra equipment)



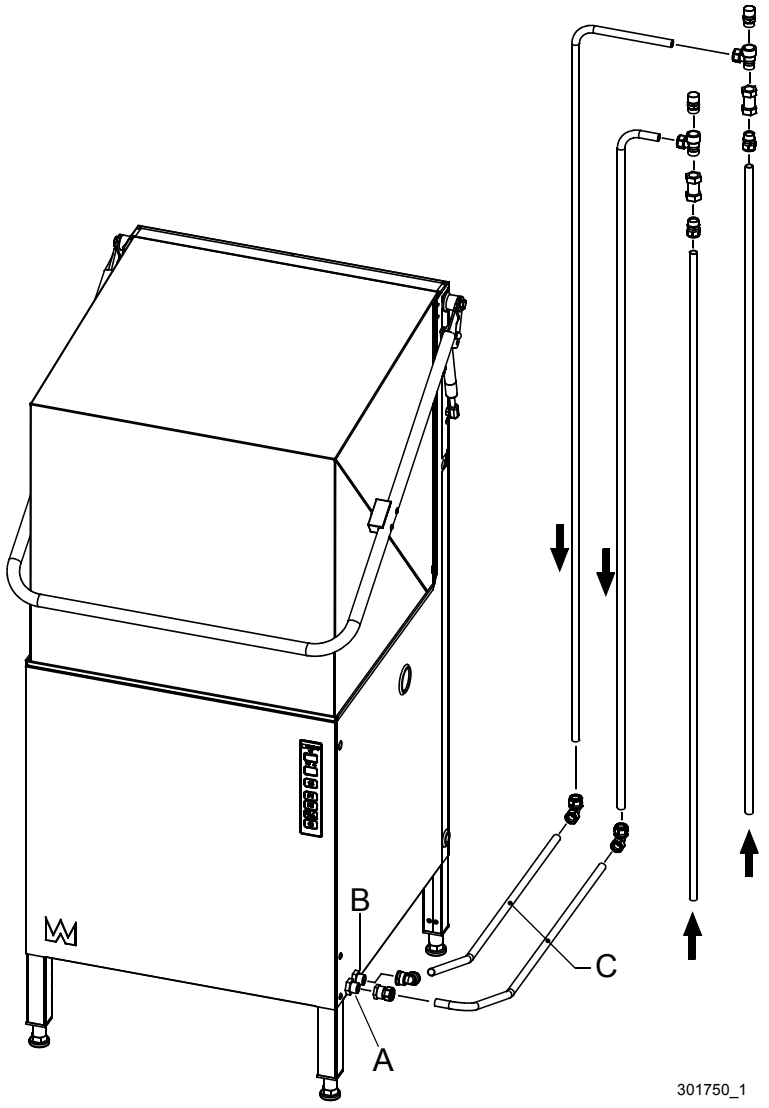
- The pipe is connected to the machine's water connection (A).
- The pipe (B) must be cut to the correct length during the installation.

3.5.3 Anti-siphoning device, machine with an automatic hood and with a booster pump (extra equipment)



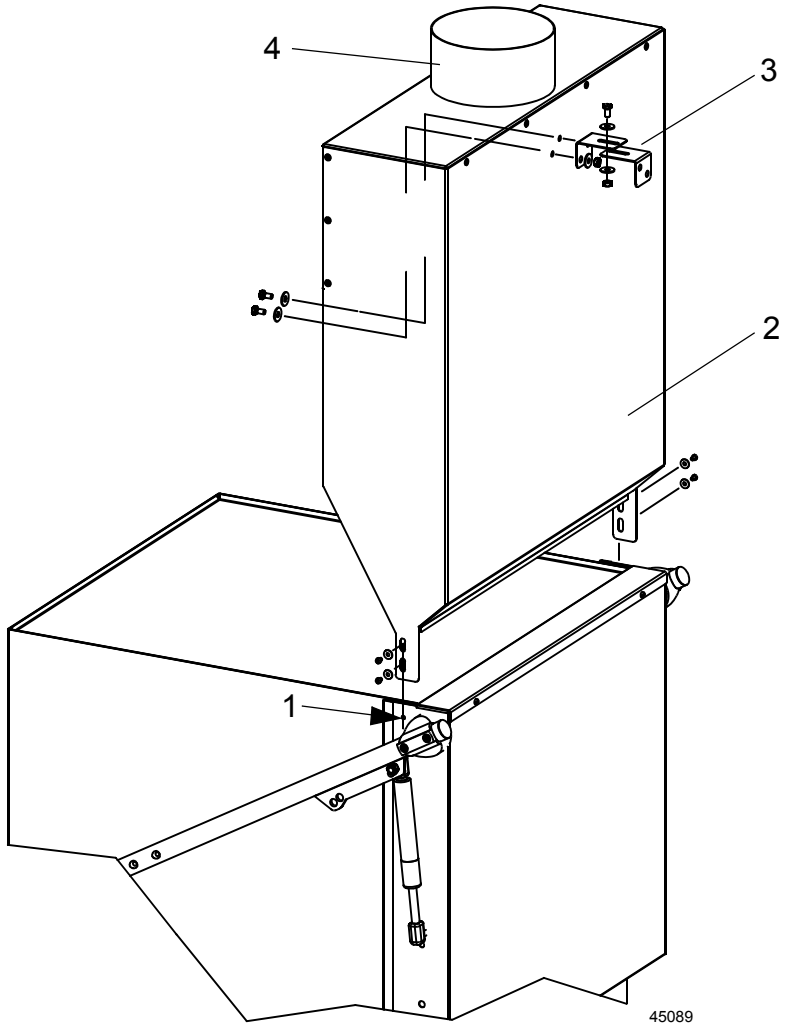
- A = connection for incoming water (left-hand connection).
- The pipe is connected to the connection (B) to the booster pump's outlet pipe which is below the lower edge of the machine's stand.
- The other end of the pipe is connected to the right-hand connection (C).
- The pipe (D) must be cut to the correct length during the installation.

3.5.4 Anti-siphoning device, machine with an automatic hood and without a booster pump (extra equipment)



- The two pipes are connected to the machine's water connections (A) and (B).
- The pipe (C) must be cut to the correct length during the installation.

3.5.5 Steam hood with extractor (extra equipment)

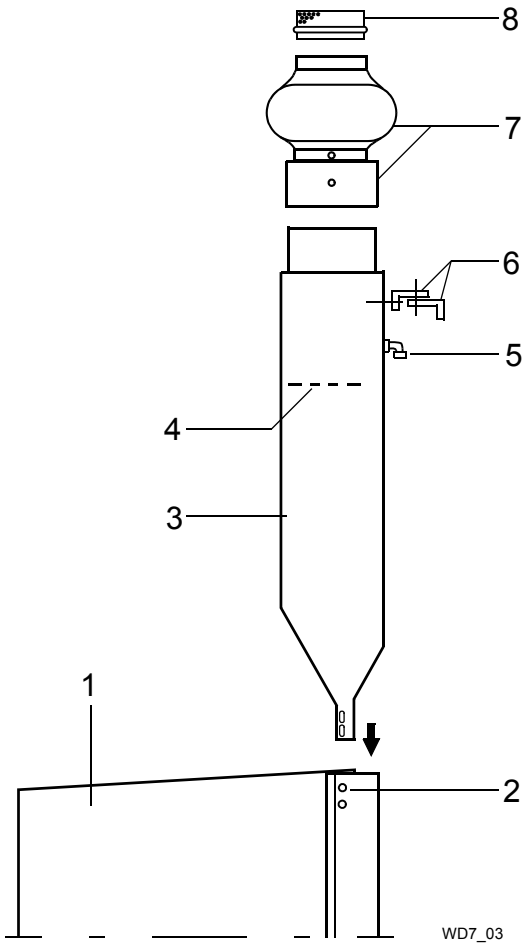


Steam hood with extractor

1. Existing screws
2. Steam hood
3. Bracket
4. Connection for ventilation ø 160 mm

- Undo the existing M4 screws at (1).
- Replace the existing screws and washers with the longer M4 screws and the larger washers provided. The steam hood (2) is fastened to (1) using these screws.
- Screw one bracket (3) firmly to the wall behind the machine. The other bracket must be put in the corresponding position on the back of the steam hood. Two holes 7 mm in diameter must be drilled through the plate.
- Screw both the brackets (3) together with the screws, washers and nuts provided.
- The ventilation duct is connected to (4).

3.5.6 Steam hood with condensation system (extra equipment)



Steam hood with condensation system

1. The machine's hood
2. Existing screws
3. Steam hood
4. Damper
5. Water connection
6. Bracket
7. Fan with connector
8. Exhaust connection

- Remove the two water hoses and the electricity cable which are fixed to the back of the machine.
- Undo the existing M4 screws at (2).
- Replace the existing screws and washers with the longer M4 screws and the larger washers provided. The steam hood (3) is fastened to (2) using these screws.
- Screw one bracket (6) firmly to the wall behind the machine. The other bracket must be put in the corresponding position on the back of the steam hood. Two holes 7 mm in diameter must be drilled through the plate.
- Connect the water hoses to the two connections (5) on the back of the hood.
- Push the machine into position and screw both the brackets (6) together with the screws, washers and nuts provided.
- Screw the fan (7) with the connection to the steam hood. Connect the electricity cable to the fan's terminal block.
- Fit the exhaust connection (8).

Adjusting the air quantity and water flow

The purpose of the steam hood is to reduce the amount of steam released by the machine into the room. During operation, when the hood is opened, the quantity of steam which passes through the exhaust connection (8) must be as small as possible. This can be ensured by adjusting the air quantity with the damper (4) and adjusting the water flow to the nozzles in the steam hood.

- Adjust the air quantity by undoing the screws which hold the damper (4) in position. Push the damper to the side.
- The water flow to the nozzles can be adjusted using the ball valve next to the solenoid Y15 inside the machine's front panel.

3.5.7 Power connection

This symbol on a component is a warning of electrical equipment. The component may only be removed by a qualified electrician. The machine is sensitive to electrostatic discharge (ESD), which is why a static electricity wristband must be used when handling the electronics.

Information about electrical connections can be found on the machine's wiring diagrams. These are located on the inside of the front panel. Store the diagrams in the electrical cabinet after installation.

The machine must be connected to a lockable mains switch. This should be placed on a wall, well-protected from water and from the steam which escapes when the hood is opened.

The machine is supplied with the electrical cable connected (1).

3.5.8 Water connection, regardless of any extra equipment

The hot water pipe is connected to (2). If the machine is connected to a hose, the internal diameter of the hose must be at least 12 mm.

If the machine has a water-powered automatic hood, the cold water is connected to (3).

The minimum water capacity (pressure) of the hot water must be 180 kPa.

The minimum water capacity (pressure) of the cold water must be 300 kPa (on machines with an automatic hood and without a pump).

The minimum water capacity (flow) of the hot water must be 18 l/min.

The minimum water capacity (flow) of the cold water must be 2 l/min (on machines with an automatic hood and without a pump).

Tank volume = 50 litres.

There must be a stopcock on the incoming water pipe.

3.5.9 Drain connection, machines without a drain pump

The waste water system connected to (4) should consist of a 50 mm metal pipe that will withstand mechanical impacts. The drain must run to a floor drain, where its opening must be above the water level. The capacity of the floor drain must be 3 litres/second.

3.5.10 Drain connection, machines with a drain pump

The pipe from the drain pump (which should preferably be a copper pipe with a diameter of 22 mm) must run to a sink and the opening must be a minimum of 25 mm above the sink.

3.5.11 Bleeding the hood lifting cylinder, with a pump connection (extra equipment)

- Open the bleed screw (6).
- Press the 0/1 button.
- Open the hood.
- Close the bleed screw (6) when water comes out of the hole on the screw.

3.5.12 Bleeding the hood lifting cylinder, with a water connection (extra equipment)

Open the bleed screw (6). Press the 0/1 button and open the water stopcock slightly until a small amount of water flows out of the bleed screw (6). Let the water run until no air bubbles are left in the hose. Close the bleed screw (6) and open the stopcock fully.

3.5.13 Detergent and drying agent connection

Drying agent equipment is included with the machine. Connect the suction hose on the drying agent injector to the drying agent container.

The equipment for liquid detergent is extra equipment. If the machine is supplied with detergent equipment, connect the suction hose on the detergent pump to the detergent container.

If equipment for a different type of detergent is used, it should preferably be put on the wall behind the machine to avoid holes being drilled unnecessarily in the machine.

There is a plugged hole for a detergent hose on the back and end of the machine (5).

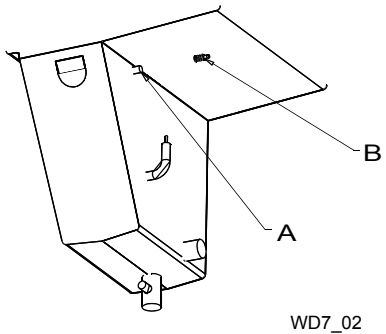
The detergent hose is connected to the pipe (A) at the top of the chemical washing tank on the right-hand side (see the figure below). There is a connection nipple in the pipe (B).

If detergent paste is being used, the connection nipple must be removed and the hose connected directly to the pipe (A).

If liquid detergent is used, the nipple must be left in the pipe. Drill a hole through the nipple and connect the hose to the nipple.

The measuring cell for measuring the concentration of detergent in the washing water must be put in the bottom of the tank. The "CELL" sticker on the bottom of the tank indicates where the hole can be drilled.

The water outlet for detergent (7) is on the incoming water pipe (2).



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Connecting the detergent hose.

A=Connection in the tank
B=Connection nipple

The process of setting the detergent and drying agent dosage is described in the ADJUSTMENT INSTRUCTIONS.

Electrical connections, see wiring diagram.

The machine can also be equipped with detergent and drying agent equipment via external connections. See the wiring diagram for the correct connection.

3.6 Settings options for detergent and drying agent equipment (extra equipment)

Check which equipment is fitted to the machine before starting work.

Switch off the power supply to the machine at the mains switch before starting work in the electrical cabinet.

The first section "24V AC or 230V AC power supply for detergent and drying agent dosing via relay 9/J71 and relay 11/J73" explains how the contacts are supplied with the relevant voltage.

The second section "Settings options for relay 9/J71 and relay 11/J73" describes the different settings available and how they can be changed.

3.6.1 24V AC or 230V AC power supply for detergent and drying agent dosing via relay 9/J71 and relay 11/J73

The detergent and drying agent dosage system can take its power from two relays on the data card. The relays can be dead, with no power supply, (trigger function) or they can be connected to a 24V AC or 230V AC supply to power the dosage system. Each relay has a contact for connecting the equipment. Relay 9 for detergent is connected via a 3-pin J71 contact. Relay 11 for drying agent is connected via a 2-pin J73 contact.

For right connection at X10 see the machines wiring diagram.

230V AC equipment should not draw more than 1.5A.

24V AC equipment should not draw more than 1.5A.

The time and method for switching on the relays is determined by the settings in the table of reference values. See the section "Settings options for relay 9/J71 and relay 11/J73".

Relay 9/J71. Dead closing function (trigger function) (230V/ 400V machine)

To use the closing function without a power supply, follow these instructions:

- Contact the equipment to be controlled to contacts J71-101 and J71-105.

Relay 9/J71. 230V AC version (400V 3-phase machine)

To connect a 230V AC power supply to the contact, follow these instructions:

1. Connect a blue 0.75mm² wire from connector N1, N2 or N3 in the electrical cabinet to contact J71-102.
2. Connect a black 0.75mm² wire from connector X!0 to contact J71-105.
3. Connect the equipment to be controlled to contacts J71-101 and J71-102. There will be two wires connected to contact J71-102.

Relay 9/J71. 230V AC version (230V 3-phase machine)

To connect a 230V AC power supply to the contact, follow these instructions:

1. Connect a black 0.75mm² wire from connector X!0 in the centre of the electrical cabinet to contact J71-102.
2. Connect a black 0.75mm² wire from connector X!0 to contact J71-105.
3. Connect the equipment to be controlled to contacts J71-101 and J71-102. There will be two wires connected to contact J71-102.

Relay 9/J71. Relay 9. 24V AC version (230V/400V 3-phase machine)

To connect a 24V AC power supply to the contact, follow these instructions:

1. Connect a red 0.75mm² wire from connector X!0 in the electrical cabinet to contact J71-102.
2. Connect a red 0.75mm² wire from the 8-pin contact on the data card labelled J69-8 to contact J71-105.
3. Connect the equipment to be controlled to contacts J71-101 and J71-102. There will be two wires connected to contact J71-102.

Relay 11/J73. Dead closing function (trigger function) (230V/ 400V 3-phase machine)

To use the closing function without a power supply, follow these instructions:

- Contact the equipment to be controlled to contacts J73-103 and J73-104.

Relay 11/J73. 230V AC version (400V 3-phase machine)

To connect a 230V AC power supply to the contact, follow these instructions:

1. If a 230V AC version of J71 is fitted: Connect J71-105 to J73-104 using a black 0.75mm² wire.
2. If J71 is not fitted or is not a 230V AC version: Connect a black 0.75mm² wire from connector X!0 to contact J73-104.
3. Connect the equipment to be controlled between contact J73-103 and connector N1, N2 or N3 in the electrical cabinet.

Relay 11/J73. 230V AC version (230V 3-phase machine)

To connect a 230V AC power supply to the contact, follow these instructions:

1. If a 230V AC version of J71 is fitted: Connect J71-105 to J73-104 using a black 0.75mm² wire.
2. If J71 is not fitted or is not a 230V AC version: Connect a black 0.75mm² wire from connector X!0 to contact J73-104.
3. Connect the equipment to be controlled between contact J73-103 and connector X!0 in the electrical cabinet.

Relay 11/J73. Relay 11. 24V AC version (230V/400V 3-phase machine)

To connect a 24V AC power supply to the contact, follow these instructions:

1. If a 24V AC version of J71 is fitted: Connect J71-105 to J73-104 using a red 0.75mm² wire.
2. If J71 is not fitted or is not a 24V AC version: Connect a red 0.75mm² wire from the 8-pin contact on the data card labelled J69-8 to contact J73-104.
3. Connect the equipment to be controlled between contact J73-103 and connector X!0 in the electrical cabinet.

3.6.2 Settings options for relay 9/J71

The function of relay 9/J71 can only be influenced by the reference value on row 22.

Relay 9/J71. Set/change the dosage interval during filling and final rinse.

1. Switch on the power to the machine.
2. Go into S1 mode, by pressing the service button on the data card.
3. Go to row 22.
4. Increase the setting by pressing "P2".
5. Reduce the setting by pressing "P3".
6. Leave S1 mode by pressing the 0/1 button.
7. The setting is saved when you leave S1 mode.
8. The new value will be used next time the machine is filled or after the next final rinse.

Relay 9/J71. Constant voltage when the machine is started

1. Switch on the power to the machine.
2. Go into S1 mode, by pressing the service button on the data card.
3. Go to row 22.
4. Change the setting to "00".
5. Leave S1 mode by pressing the 0/1 button.
6. The setting is saved when you leave S1 mode.
7. The new value will be used as soon as it is applicable.

Relay 9/J71. Parallel operation with the chemical pump

1. Switch on the power to the machine.
2. Go into S1 mode, by pressing the service button on the data card.
3. Go to row 22.
4. Change the setting to "99".
5. Leave S1 mode by pressing the 0/1 button.
6. The setting is saved when you leave S1 mode.
7. The new value will be used as soon as it is applicable.

3.6.3 Settings options for relay 11/J73

Set the correct function for relay 11/J73 by ensuring that the reference value on row 105 is set to "0", which corresponds to "external dosing of drying agent", before starting on the settings on row 23.

Relay 11/J73. Set/change the dosage interval during filling and final rinse.

1. Switch on the power to the machine.
2. Go into S1 mode, by pressing the service button on the data card.
3. Go to row 23.
4. Increase the setting by pressing "P2".
5. Reduce the setting by pressing "P3".
6. Leave S1 mode by pressing the 0/1 button.
7. The setting is saved when you leave S1 mode.
8. The new value will be used during the next final rinse.

Relay 11/J73. Parallel operation with the final rinse valve for filling and washing (hose pump)

1. Switch on the power to the machine.
2. Go into S1 mode, by pressing the service button on the data card.
3. Go to row 23.
4. Change the setting to "00".
5. Leave S1 mode by pressing the 0/1 button.
6. The setting is saved when you leave S1 mode.
7. The new value will be used as soon as it is applicable.

Relay 11/J73. Parallel operation with the chemical pump

1. Switch on the power to the machine.
2. Go into S1 mode, by pressing the service button on the data card.
3. Go to row 23.
4. Change the setting to "99".
5. Leave S1 mode by pressing the 0/1 button.
6. The setting is saved when you leave S1 mode.
7. The new value will be used as soon as it is applicable.

3.7 Trial run

Prepare the machine for a trial run by following the INSTRUCTIONS FOR USE. The instructions describe the measures that must be taken to prepare the machine for operation.

3.7.1 Start-up schedule

This should be completed and signed by the customer on start-up.

Machine type:

Machine serial number:

Installation date:

Customer:
Postal address:
Telephone:
Contact:

Dealer:
Telephone:
Contact:

Installation company:
Telephone:
Contact:

Service company:
Telephone:

Detergent supplier:
Telephone:

Customer's signature:

Read the installation and user manuals carefully. Then check off the following points:

1. Check:

- Water and drain connections
- That the machine is evenly balanced
- Detergent and drying agent
- Filters and level pipe are in place
- The overheating protection on the booster heater is set to zero.

2. Filling the machine:

- Turn on the mains switch and any circuit breakers
- Close the hood
- Fill the machine with water in accordance with the INSTRUCTIONS FOR USE

3. Start the machine:

- Check the pump's direction of rotation NOTE: If the pump is rotating in the wrong direction, the phase must be inverted on the lockable mains switch.
- Empty the machine and refill it
- Check the final rinse flow during filling Note: If the flow is correct, the machine will fill in 2.5 min. (machine with standard equipment). The flow is regulated by the built-in ball valve.

4. Check the setting of the reference values:

- All the reference values have been set to the recommended values on delivery

5. Run a number of washes complete with loads and check that:

- There are no water leaks
- The hood switch functions
- The automatic hood lift functions (extra equipment)
- The automatic hood closure functions (extra equipment)
- The water temperatures are maintained
- The washed items are clean
- The washed items are dried Note: The equipment for detergent and drying agent is roughly set at the factory. Contact your detergent supplier for a more precise setting.

6. Final check: Empty the machine and turn off the power using the mains switch.

- Re-tighten all the connections on the relays and any circuit breakers
- Set all the circuit breakers to the ON position
- Display the maintenance instructions supplied with the machine.

7. Train dishwashing staff

3.8 Technical documentation

To ensure that the machine is operated and serviced correctly, it is important that the documentation supplied with the machine is made available to the personnel using it. The installation and user manual, which describes, amongst other things, how to operate and maintain the machine, should be stored near the machine.

If the service manual is supplied with the machine, it should be given to the service engineer who is responsible for the machine.

If the spare parts manual is supplied with the machine, it should be given to the service engineer who is responsible for the machine.

4. Instructions for use

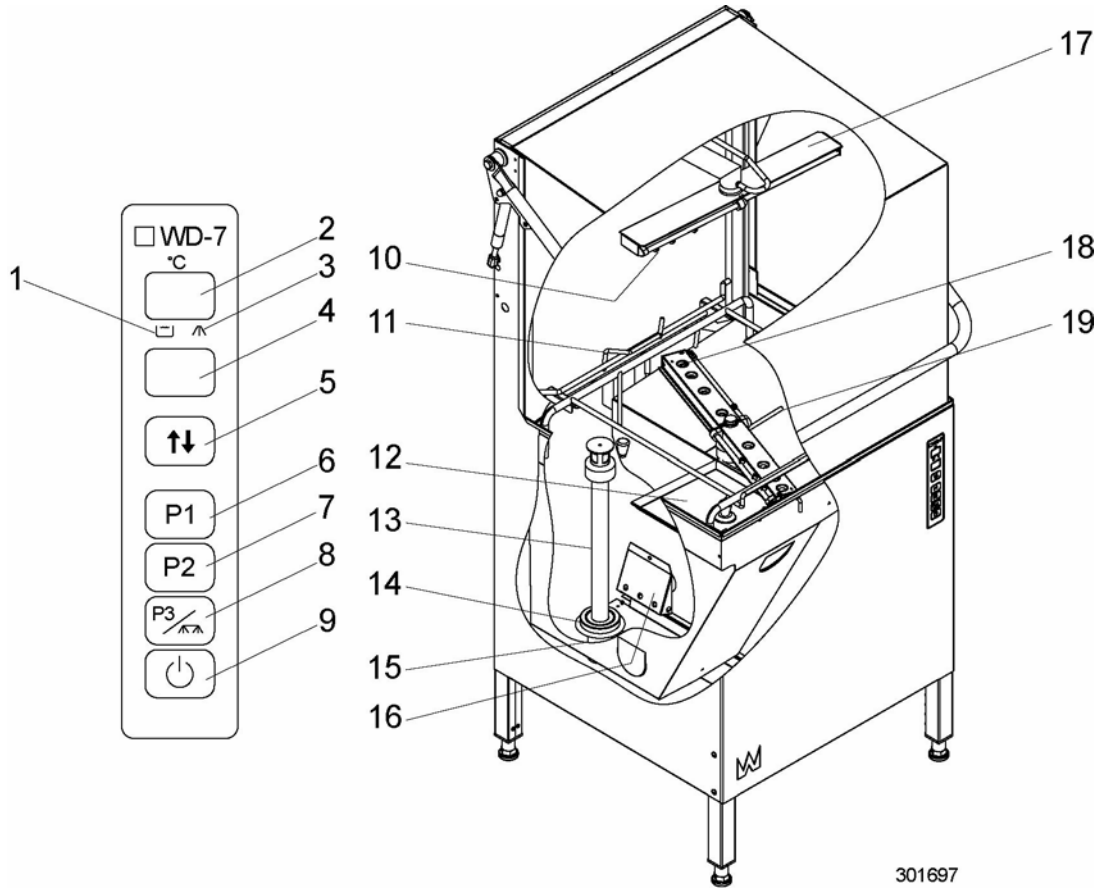
All personnel using the machine should be trained in how the machine works by the person responsible for staff safety.

The dishwasher should not be used by anyone suffering from a physical or mental illness.

Children should be watched closely to ensure that they do not play with the machine.

4.1 Preparations

4.1.1 The machine's design



1. Symbol for washing function. After the machine is started, the symbol lights up when the tank is full. The symbol flashes if the water level in the tank is too low.
2. Display for temperature during operation. When checking and setting reference values, the display shows the number for the relevant reference value, e.g. 01, 02, 03 etc. Error messages appear on the other display (4).
3. Final rinse indicator. The symbol is lit while the machine is filling up, during the final rinse phase and when the cleaning programme is run after a completed washing cycle. The symbol flashes if the hood is opened during the washing cycle or if the final rinse water has not reached the correct rinse temperature when the rinsing phase is due to start. The machine continues washing until the correct rinse temperature has been reached.
4. Display showing the programme during operation, which counts down the remaining washing time.
5. Button for closing or opening the hood. (On machines with an automatic hood lift.)
6. Button for washing programme P1. When the machine is in service mode, P1 is used to show the different reference values and to reset the reference values to the last saved values. If the machine has a drain pump, P1 is used to start the drain pump and empty the tank after washing.
7. Button for washing programme P2. P2 is used in service mode to increase a reference value or move between tables. In shut-off mode the software version number can be displayed by holding down P2.
8. Button for washing programme P3. P3 is used in service mode to reduce a reference value or move between tables. P3 is used in shut-off mode to start internal rinsing when the cleaning programme is used to clean the machine.
9. Button to switch the power on or off. This button is also used to reset alarms, display the water flow to the machine and to move to service mode.
10. Rinse nozzle
11. Automatic hood closing switch (if the machine has this option, the hood is closed automatically when a basket is loaded in the machine.)
12. Tank filter
13. Level pipe
14. Rubber sleeve
15. Drain filter (on machines with a drain pump).
16. Pump filter
17. Washing and rinsing arm
18. Wash nozzle
19. Lever for normal/heavily soiled wash

4.1.2 Preparations before filling

Numbers in brackets refer to the diagram in the chapter "The machine's design".

Check:

- that the dishwasher and all the removable components are clean and that there is no dirt in the nozzles in the washing and rinsing arms (10, 18)
- that the rubber sleeve (14) is undamaged.
- that the stopcock is open
- the amount of detergent and drying agent.

Washing up liquid must not be used in the machine or for soaking dishes. It causes foam to form and produces poor washing results.

Fit:

The level pipe (13), filters (12) and, where appropriate, the drain filter (15). The rubber sleeve (14) must seal against the base plate.

Switch on the power using the 0/1 button (9).

4.1.3 Filling the machine

Numbers in brackets refer to the diagram in the chapter "The machine's design".

- Switch on the power using the 0/1 button (9) on the panel. The display (3) shows the temperature of the rinsing water. The other display (4) shows "P0". P0 is a pause mode which indicates that no washing programme has been selected.
- Close the hood and the machine will start to fill. The heating time is dependent on the incoming water temperature.
- Once the machine is full, the symbol (1) lights up and the display (2) shows the temperature of the washing water. If the washing temperature falls below the set value by more than 5°C, the temperature shown on the display (2) flashes.
- The machine cannot start washing until the set temperature minus 5°C for the washing water has been reached, if this function is selected. The normal operating temperature for the washing phase is 60°C. When the washing temperature falls below 50°C, the temperature display flashes.

4.2 Using the machine

4.2.1 Selecting a programme

The machine can be set to two wash modes. - = normal wash or + = heavily soiled wash. A lever (19) inside the machine is used to adjust the setting.

When washing pans and very deep items, the heavily soiled programme should be selected.

When the heavily soiled programme is selected, there is increased washing pressure from the lower washing arm.

The control panel has three programme buttons: P1, P2 and P3.

- P1 is for lightly soiled dishware (e.g. trays and glasses)
- P2 is for normal washing
- P3 is for heavily soiled items

The washing temperature and chemical washing time for each programme is set on delivery. The operator can change these values if required.

4.2.2 Changing the washing temperature and washing time

The factory setting for the washing temperature is 60°C. The operator can adjust the temperature to between 55 and 70°C.

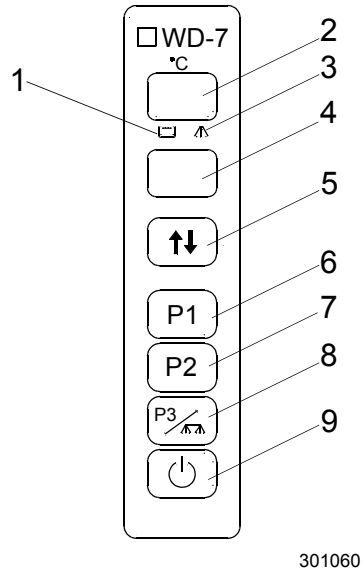
The chemical washing times for each programme are set on delivery to:

- 1.0 minutes (programme P1)
- 1.5 minutes (programme P2)
- 3.0 minutes (programme P3)

The washing times can be adjusted between 1.0 and 6.0 minutes.

Changing the values – Selecting service mode

The machine must be set to service mode when the operator needs to change a value. This is done using the control panel. The values that can be changed flash. The displays and buttons have different functions than when the machine is in normal operating mode.



The panel's functions in service mode.

1. Symbol for washing function.
2. Display for the table numbers and the row numbers of each table.
3. Symbol for final rinse.
4. Display of values and other information for all the row numbers in the tables.
5. Button for opening/closing the hood. (On machines with an automatic hood.)
6. Use the P1 button to move between the table rows or to reset the values to those last saved.
7. Use the P2 button to increase a value or move forwards between the tables.
8. Use the P3 button to reduce a value or move backwards between the tables.
9. Use the 0/1 button to enter or exit service mode.

All the values are laid out in tables, with each table containing a certain number of rows, one for each value. The table containing the values for the washing temperature and washing times for the different programmes is "0.0".

The values for washing temperature and washing times are on rows 01 to 04 (inclusive) of table "0.0".

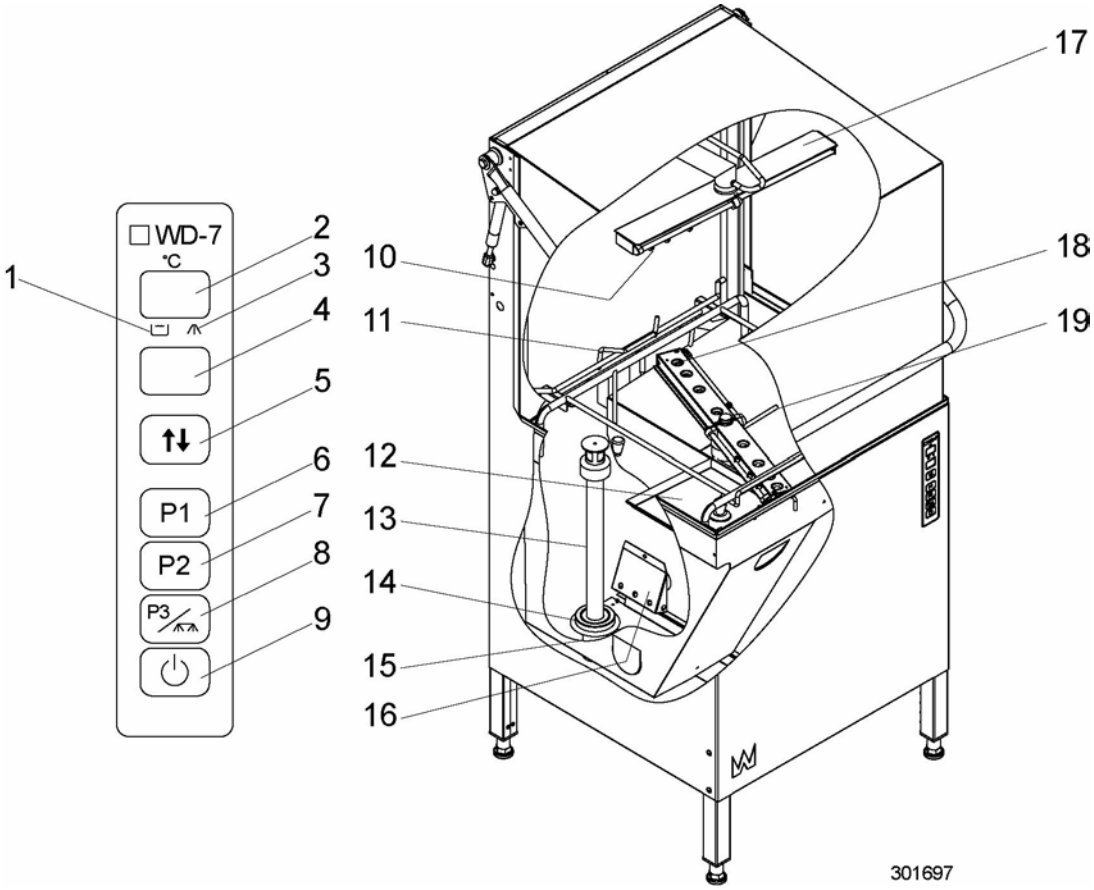
Table 0.0		
Row number	Relates to	Range of settings
01	Washing temperature	55 - 70°C
02	Washing time programme P1	1.0 - 6.0 min
03	Washing time programme P2	1.0 - 6.0 min
04	Washing time programme P3	1.0 - 6.0 min

To select service mode and change the washing temperature and washing time, follow these instructions:

- When moving to service mode, the washing programme must be finished.
- Press the 0/1 button (9). Both the displays will now show two horizontal dashes "--" and the machine will be in shut-off mode.
- Hold the 0/1 button (9) down for approx. 3 seconds until the top display (2) shows "0.0". When "0.0" appears on the display (2), the machine is in service mode.
- Press P1 (6). The top display (2) will now show 01, the first row number in the table. The bottom display (4) shows the set washing temperature flashing; only values that flash when they appear can be changed. If the temperature is to be changed, press P2 (7) to increase the value or P3 (8) to reduce the value.
- If the washing time for a programme is to be changed, use P1 (6) to move to the next row number in the table. For explanations of row numbers 01, 02, 03 and 04, see table "0.0" above.
- When the settings have been changed, exit service mode by holding down the 0/1 button (9) for approx. 3 seconds until the displays (2, 4) show two horizontal dashes “--”. The changed values are now saved.
- Return to normal operating mode by then quickly pressing the 0/1 button (9).

4.2.3 Washing

The dishware must not be soaked or pre-washed in washing up liquid.

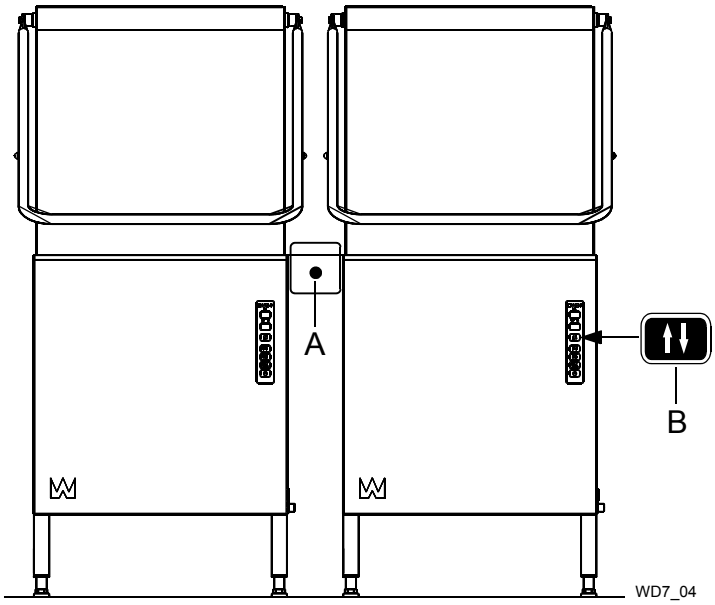


- Remove large pieces of food by rinsing the dishes with a hand shower. The water in the hand shower must not exceed 40°C. Place the items to be washed in the basket.
- Open the hood.
- Put the lever (19) in the correct position for the items currently in the basket: - is for normally soiled and + for heavily soiled dishware.
- Slide the basket into the machine. Select the programme.
- Close the hood. The machine starts washing using the selected programme. The display (4) now shows the remaining washing time for the programme.
- The symbol (1) is lit during the washing phase.
- Once the rinsing phase starts, the symbol (3) lights up. If the final rinse water has not reached the correct rinse temperature once rinsing starts, the symbol (3) flashes and the machine continues washing until the rinsing water has reached the correct temperature.
- Do not open the hood until the programme has finished.
- If the hood is opened during the washing cycle, the machine will stop. If the hood is closed again, the programme will start from the beginning.
- Once the machine has stopped, the display (4) shows P0. Remove the washed items and allow them to dry.

P0 is a pause mode and is used in the case of prolonged intervals between washes in order to maintain the tank temperature. The hood must be closed. The machine does not start in P0 mode.

- Press the programme button for the current programme once. "P0" appears on the display (4).
- Press the button again to return to the current programme.
- The hood must be opened and closed between each washing cycle.

Washing with dual machines (extra equipment)



- A=Button for dual-controlled hood lift
- B= Button for controlling the hood lift on each machine

The procedure for starting the machine, washing etc. is the same as when using only one machine (see the chapter: Preparations – Using the machine – After use), except that the hood lift can be operated in a different way.

When using dual machines, the washing capacity is larger. For the maximum possible capacity, the same type of items should be washed at the same time in both machines.

Put the baskets with the same type of items in the machines. Select the same washing programme on the control panels of both machines. Press the button (A) to close the hoods and start the programme.

If the items are of different types, it is possible to use a different programme on each machine, e.g. programme P1 on one machine and P3 on the other. In this case the hoods must be closed using the button (B) on each machine's control panel.

When returning to the same type of item and the same programme, both the hoods must be open in order to be able to use the button (A) at the start of the wash cycle. This may be relevant, if, for example, one machine has been temporarily paused in pause mode P0 with the hood closed.

NOTE: If the washing temperature and washing time are changed in one of the programmes, this setting must be changed on both machines.

Changing the water

For the best washing results, it is important to change the water often. For normally soiled loads, the washing water should be changed after around 50 washes. Always change the water in the event of foam problems in the tank.

If IF09 appears on the display, this indicates that the water should be changed.

When the machine is in P0 mode with the hood open and the symbol (3) is lit, change the water as follows:

Machines without a drain pump

- Check that the machine is in P0 mode.
- Open the hood.
- Remove the tank filters (12).
- Empty the machine by turning the level pipe (13) anticlockwise.
- When the tank is empty, turn the level pipe (13) clockwise and refit the tank filters (12).
- Check that the final rinse symbol (3) is lit.
- Close the hood and the machine will refill.

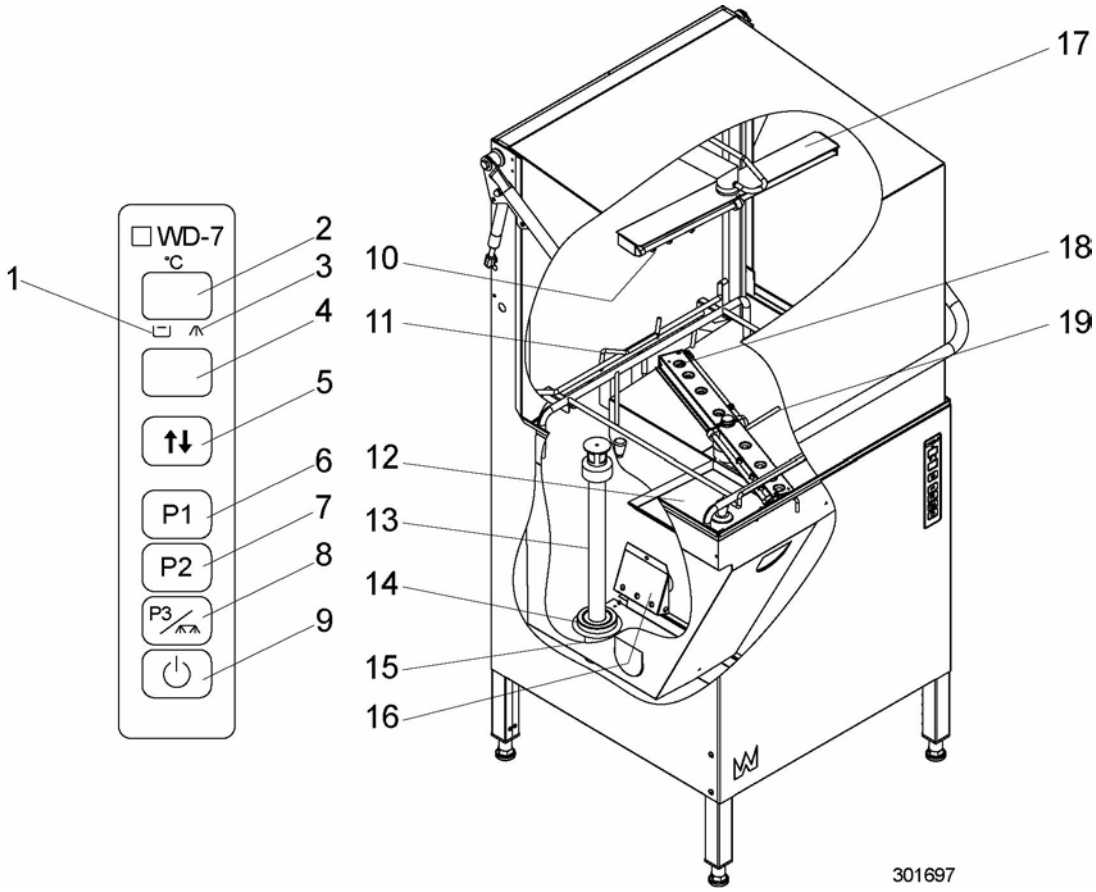
Machines with a drain pump

- Check that the machine is in P0 mode.
- Open the hood.
- Remove the tank filters (12) and the level pipe (13).
- Press the 0/1 button (9).
- Press P1 (6) to start the drain pump. "dP" appears on the display (2).
- When the tank is empty, refit the level pipe (13) and the tank filters (12).
- Press the 0/1 button (9).
- Check that the final rinse symbol (3) is lit.
- Close the hood and the machine will refill.

4.3 After use – cleaning

HACCP

HACCP is a preventive inspection system which ensures that hygiene requirements are met during the washing process and the cleaning of the machine. As a result of its design, the machine meets strict hygiene requirements. Regular, thorough cleaning is also important from a hygiene perspective. Cleaning the machine carefully helps to ensure good washing results and reduces the risk of dirt accumulating inside the machine.



4.3.1 Draining and internal cleaning (machine without a drain pump)

When the machine is switched off, the number of baskets washed appears on the display for approximately 5 seconds.

After this two horizontal dashes "--" are displayed for 3 minutes. At this point the machine is still live and emptying and internal cleaning must take place within this period. The machine then switches off automatically.

- Open the hood. Press button 0/1 (9). Take out the filters (12). Drain the washing tank by removing the level pipe (13).
- Close the hood. Press P3 (8). The display (2) shows "SC" and the internal cleaning process starts. The other display (4) shows the remaining cleaning time. When the cleaning process is finished, both the displays show two horizontal dashes "--".
- Open the hood. Check that the washing and rinsing nozzles (10, 18) are clean and that no objects have fallen and lodged in the machine.
- Remove and clean the pump filter (16), the chemical washing filters (12) and the level pipe (13).
- Store the cleaned parts in a washing basket. Make sure that the rubber sleeve (14) on the level pipe does not become deformed, by allowing it to hang free.

4.3.2 Draining and internal cleaning (machine with a drain pump)

When the machine is switched off, the number of baskets washed appears on the display for approximately 5 seconds.

After this two horizontal dashes "--" are displayed for 3 minutes. At this point the machine is still live and emptying and internal cleaning must take place within this period. The machine then switches off automatically.

- Open the hood. Press button 0/1 (9). Take out the filters (12). Drain the washing tank by removing the level pipe (13).
- Close the hood. Press P1 (6). "dP" appears on the display (2) and the drain pump starts. It stops automatically after a set period.
- Once the machine has been emptied, close the hood. Press P3 (8). The display (2) shows "SC" and the internal cleaning process starts. The other display (4) shows the remaining cleaning time. After the cleaning process has finished and the water has been emptied out, both the displays show two horizontal dashes "--".
- Open the hood. Check that the washing and rinsing nozzles (10, 18) are clean and that no objects have fallen and lodged in the machine.
- Remove and clean the pump filter (16), the chemical washing filters (12) and the level pipe (13).
- Store the cleaned parts in a washing basket. Make sure that the rubber sleeve (14) on the level pipe does not become deformed, by allowing it to hang free.

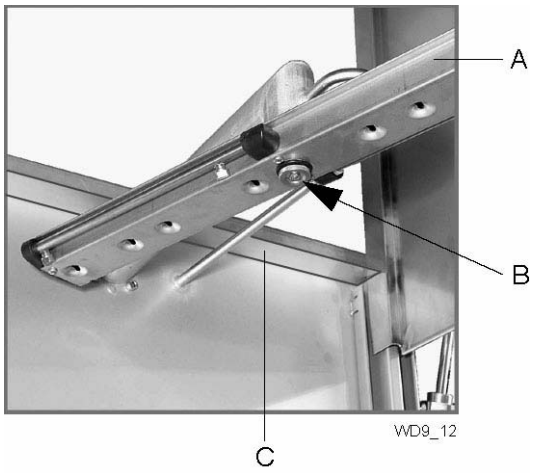
Position of clean components after washing.

4.3.3 Cleaning each week

Weekly cleaning should be more thorough than daily cleaning. If the information message "IF10" is shown on the display, this indicates that weekly cleaning needs to be done.

In addition to the daily cleaning measures, follow these instructions:

- Remove the washing arms. Loosen the lock nut (B) in the centre of the washing arm and remove the washing arm. Check and clean the nozzles if necessary. Rinse the washing arms and refit them.
- Clean the top of the splash strip (C). The strip is inside the top of the machine at the back.



A=Upper washing arm B=Lock nut C=Splash strip

4.3.4 Cleaning the exterior

Wipe the outside of the machine with a soft, damp cloth.

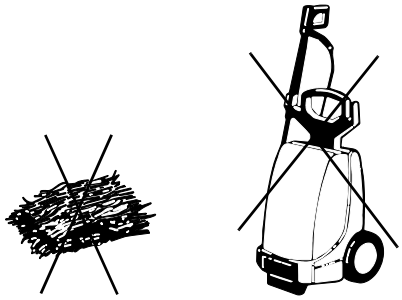
If detergent is used, it must not contain abrasives. Detergents containing abrasives will damage the stainless steel panels.

The outside of the machine must not be hosed down. Water can enter the machine and damage the control panel and electrical equipment.

4.3.5 Incorrect cleaning methods

NOTE: An incorrect cleaning method may damage the machine. The following points must be observed:

- Do NOT use steel wool as it will cause corrosion to form on the machine.
- Pressure washers can damage the machine and must NOT be used for cleaning purposes. Never use a pressure washer on the floor less than 1 metre from the dishwasher without the special protective covers available to prevent splashes. The supplier cannot be held liable for any faults caused by the use of pressure washers on the machine and any such use will invalidate the guarantee.



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There is a risk of splashing even if the floor is only hosed down with a normal hose.

4.3.6 Operating problems

Error messages

When the machine is operating, various alarms or information messages can appear on both the control panel displays. There is a distinction between IF and Er alarms. IF alarms can normally be dealt with by the operator. If there is an Er alarm, the service personnel must be called. Some IF alarms that have been dealt with by the operator a few times will eventually change to Er alarms, meaning that the service personnel must be contacted.

Each alarm has a number: 01, 02, 03 etc. The top display shows either IF or Er. The bottom display shows the alarm number.

CODE	CAUSE	ACTION
IF01/ Er01	The time needed to fill the tank has been exceeded.	The alarm can be reset by pressing 0/1 on the panel.
	The level pipe is not in place.	Fit the level pipe.
	The level pipe's rubber sleeve is not sealing against the bottom plate.	Adjust the level pipe. Check that the rubber sleeve has not been damaged. Replace the sleeve, if it is damaged.
	The water stopcock is closed.	Open the stopcock.
IF06/ Er06	The booster heater is not cooled during the final rinsing phase.	The alarm can be reset by pressing 0/1 on the panel.
	The water stopcock is closed.	Open the stopcock. Close the door.
IF09	Alarm for changing the water.	Change the water. The alarm can be reset by pressing 0/1 on the panel. If the alarm is not set to stop the machine, the washing programme can continue.
IF10	Alarm for weekly cleaning.	The machine must be cleaned more thoroughly than during daily cleaning. The alarm can be reset by pressing 0/1 on the panel.
IF30	Low water level in the washing tank before washing.	Check that the level pipe is closed. The alarm can be reset by pressing 0/1 on the panel.
	The level pipe's rubber sleeve is leaking.	Check that the level pipe's rubber sleeve has not been damaged.
IF34	Detergent alarm.	The alarm can be reset by pressing 0/1 on the panel.
	The machine has run out of detergent.	Check the amount of detergent and refill, if necessary.
IF35	The washing tank does not fill with water.	Open and close the hood to start the filling process. The alarm can be reset by pressing 0/1 on the panel.
Er02	It has taken too long for the machine to heat up, compared with the previous time.	The alarm can be reset by pressing 0/1 on the panel. Contact service personnel if the alarm recurs.
Er04	Faulty temperature sensor.	Contact service personnel.
Er05	Faulty temperature sensor.	Contact service personnel.
Er16	The temperature in the booster heater is too low.	The alarm can be reset by pressing 0/1 on the panel. Contact service personnel.
Er23	The hood does not open when the automatic hood opener is used.	The alarm can be reset by pressing 0/1 on the panel. Contact service personnel if the fault recurs.
Er27	The machine has lost all its set values.	Contact service personnel.
Er96	The motor safety cut-out for the pump has tripped.	Contact service personnel.
Er97	One digital input is shorted to ground.	Contact service personnel.
Er98	Communication fault between the CPU and the panel card.	The alarm can be reset by pressing 0/1 on the panel. Contact service personnel if the alarm recurs.
Er99	Communication fault between the computer and panel cards.	The alarm can be reset by pressing 0/1 on the panel. Contact service personnel if the alarm recurs.

Troubleshooting

The following errors can be dealt with by the operator. If the problem persists, contact the service personnel.

PROBLEM	CAUSE	ACTION
The machine will not start.	The mains switch is off.	Turn on main switch
The machine does not fill with water.	The incoming water stopcock is closed.	Open the stopcock.
	The hood is open.	Close the hood.
	The level pipe is not in place.	Fit the level pipe.
	The level pipe's rubber sleeve is not sealing against the bottom plate.	Adjust the level pipe. Check that the rubber sleeve has not been damaged. Change the rubber sleeve if it is damaged.
	The rinsing pipe nozzles are blocked.	Clean the rinsing nozzles.
The machine fills slowly.	The rinsing pipe nozzles are blocked.	Clean the rinsing nozzles.
The machine does not stop filling.	The level pipe is not in place.	Fit the level pipe.
	The level pipe's rubber sleeve is not sealing against the bottom plate.	Adjust the level pipe. Check that the rubber sleeve has not been damaged. Change the rubber sleeve if it is damaged.
The machine does not start washing.	The hood is open.	Close the hood.
Noise from the wash pump.	Low water level. Foam in the tank.	Check the level. Change the water.
The machine stops in the middle of the washing cycle and starts taking in water.	The level pipe's rubber sleeve is not sealing against the bottom plate.	Adjust the level pipe. Check that the rubber sleeve has not been damaged. Change the rubber sleeve if it is damaged.
The machine is not cleaning properly. The items are tipped over in the baskets.	The rinse and wash nozzles are clogged with dirt.	Check and clean the nozzles.
	There is too little detergent.	Check the amount of detergent. The hose must be submerged in liquid and the filter in the hose must be clean.
	The water in the tank is too dirty.	Change the water.
	Foam forming in tank.	Check that the washing temperature is not too low and that the correct detergent is being used.
	Dirt has dried on the items to be washed.	Soak the items before washing.
	The items are incorrectly positioned in the baskets.	Use the right type of washing basket and accessories so that the items are correctly positioned.
	The items are incorrectly positioned in the baskets.	Put the items in the correct position.
	Light items need washing.	Use a net grid to hold the items.
The washed items do not dry.	The rinse nozzles are blocked.	Check and clean the nozzles.
	Too little rinsing agent.	Check the amount of rinsing agent. The hose must be submerged in liquid and the filter in the hose must be clean.
	The washed items have been left in the machine.	Remove the washed items once the programme has ended.

When you contact service personnel, you will need to provide the following information:

- Machine type and model
- Machine serial number and installation date
- A short description of the fault/problem
- What happened/was being done immediately before the fault occurred

Wexiödisk

EU Declaration of Conformity

Manufacturer Wexiödisk AB
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Our machines are manufactured 2007 in accordance with applicable EU directives and we declare under sole responsibility that the following products:

Single tank dishwashers:
WD-4x, WD-6x, WD-7x, WD-9x

Pot wash machines:
WD-12GHE, WD-90GR, WD-100GR

Tunnel dishwashers with accessories:
WD-11, WD-151/211/241, WD-151E/211E/241E/331E/421E, WD-153/213/243/333/423
WD-PRM60/90, T-60/90/180, T-90°/180°

Conveyor dishwashers*:
WD-B xxE, WD-xxCT, WD-40BRE, ACS-38/47

Special dishwashers*:
WD-18CW, WD-25BR, WD-25T, WD-8020/8020W, WD-9020/9020W, WD-8020WL, ACS400/ ACS800/ ACS-SET

Conform to the following directives:

EU Declaration of Conformity
according to EU's Machinery Directive 98/37/EEC, annex IIA.

Harmonised standards
EN 12 100-1 Machine safety: specification for general requirements, part 1
EN 12 100-2 Machine safety: specification for general requirements, part 2.
EN 60 204-1 Machine safety: electrical equipping of machines: general requirements

EU Declaration of Conformity
according to EU's Low-voltage directive 73/23/EEC and 93/68/EEC.

Harmonised standards
EN 60 529 Specification for degrees of protection provided by enclosures (IP code).
For products marked with *
EN 60 204-1 Machine safety: electrical equipping of machines: general requirements
For other products
EN 60 335-1 Safety of household and similar electrical appliances - General requirements.
EN 60 335-2-58 Specification for safety of household and similar electrical appliances. Particular requirements. Commercial electric dishwashing machines.
EN 50106 Safety - Particular rules for routine tests.

EU Declaration of Conformity
according to EU's EMC-directive 89/336/EEC, 92/31/EEC and 93/68/EEC.

Harmonised standards
EN 61 000-6-2 Electromagnetic compatibility (EMC). Generic standards. Immunity standard for industrial environments.
EN 55 014-1 Electromagnetic compatibility. Requirements for household appliances, electric tools and similar apparatus. (EMC) - Part 1: Emission

Växjö 02-01-2007

Torsten Nyberg
Managing Director